

Give us the money and we will deliver the goods

Rome

THE invitation ran: "The Symposium will be held in the HONOUR ROOM of the PALACE of the KNIGHTS of the EQUESTRIAN ORDER of the HOLY SUPULCHRE of JERUSALEM near St Peter's Square". A meeting of theologists? A canonization? Not at all. In fact, this was a pre-Christmas gathering of high-energy physicists — including Nobel laureates Abdus Salam, T.D. Lee, J.W. Cronin, Val Fitch and Sam Ting — all aiming to help their Italian colleagues lobby for reform of their principal institution, the National Institute for Nuclear Physics (INFN).

This seems to be the way things are done in Italy — plenty of pomp and circumstance — but it is emphasized by the particular style of INFN president, Professor Antonino Zichichi. Not content with the meeting itself (concerned with the international role of INFN) Zichichi also arranged an audience with the Pope and a meeting between four of the Nobelists and the Italian President, Sandro Pertini. But the highlight of the meeting appeared to be unplanned and unexpected. Claudio Villi, an ex-president of INFN and professor of theoretical physics at the University of Padua, slammed the government of his day (he was INFN president from 1970 to 1975) for "complete indifference to research". They could, he claimed, have found the heavy lepton (the tau, a heavy version of the electron and muon discovered at Stanford in 1976) and the J/psi (the first direct evidence for the existence of the charmed quark, discovered in 1974) well before the Americans, if the government had listened to their pleas. The discovery of these particles helped to change the face of physics in the 1970s, and it clearly would have been remarkable if Italy had first shown them to the world.

Villi may be accused of some Latin hyperbole, but there was clearly something in what he said. The tau and the J/psi were discovered using colliding beams of electrons and positrons. (Ting also discovered the J/psi in another way, but the method was almost a dead-end.) But the technique for colliding electrons and positrons was first developed in Italy, under the guidance of Austrian-born Bruno Touscek (now dead). The means was a ring called Adone, constructed outside Rome (at Frascati), which was taking data in 1970 — but at 3 GeV, an energy just below the threshold for J/psi. Zichichi was always pushing for higher energy, said Villi, and also for a big magnetic experiment to detect heavy leptons. (Zichichi in fact developed the technique for observing such particles used later at Stanford, using an acoplanar electron and muon of opposite sign.) If the

money had been available to stretch Adone, or early support had been given to Superadone (a rejected project for a 12 GeV machine), Italy might have taken a world lead . . .

There was strong support for Villi's view that physics should receive more support and Zichichi was naturally delighted. "This will give me power with the parliamentary commission". It was not just Villi; the meeting demonstrated the scale of international collaboration in physics. And this was the key problem facing INFN: that it suffered from bureaucratic civil-service controls and career structures which meant it was difficult to employ foreigners, even for short periods, and difficult for Italians to work abroad. But Adone was now lost to high-energy physics (devoted to synchrotron radiation) and it was essential that INFN look outward.

Other major difficulties with the INFN structure, Villi said last week, were that INFN careers were not recognized by the universities, so it was difficult to make transfers between say a professorship and INFN and that the pay for senior technicians and engineers is so low — relative to industry — that it was almost impossible to find qualified people to build experiments (mainly large particle detectors) to run on accelerators abroad. 700,000 Italian lira a month (£3,700 a year) is "indecent" says Zichichi. According to another respected Italian physicist, Ugo Amaldi, Italian teams designing detectors for LEP, the big electron-positron collider due for construction at the European Centre for Nuclear Physics (CERN) near Geneva were being severely hampered. French teams, for example, had ten times as many engineers as the Italians, and the Italian contribution to LEP was suffering.

Zichichi also faces a danger: that the government will insist that the president of INFN be nominated by the government, rather than elected by the physicists as at present. This of course would reduce his power. But Zichichi is hopeful that the seminar and its fall-out will have influence. The present regulations are "fantastic, stupid" said Zichichi. He wants a structure in which INFN with its 1,000 staff and 1,000 unpaid collaborators can define its own regulations and rules, fix its own salaries (in agreement with the unions) and perhaps employ scientists on five-year renewable contracts to give flexibility and help push salaries up. He also wants an increase in the INFN budget from 75,000 million lira for 1983 to 120,000 million for 1984. "If we succeed in this we break the ice for the support of all basic science in Italy", he says. It would be extraordinary but it is just possible.

Robert Walgate

Proprietary rights to cell lines

Roche pays up

Washington

THE legal battle over ownership of the KG-1 cell line was settled out of court last week by Hoffman-LaRoche and the University of California (Los Angeles). The university will receive an undisclosed "monetary consideration" for Roche's use of the cells, in conjunction with Genentech, to produce interferon. The cell line was isolated by two researchers at the University of California at Los Angeles, Dr David Golde and Dr Philip Koefler.

Under the terms of the settlement, the parties are subject to a court order forbidding disclosure of the financial agreement. Charles Townsend, attorney for the university, said his clients are "very pleased indeed" with the settlement. As for its confidentiality, he said, "one might assume that any party that pays money would not want to have the amount revealed".

Although the monetary arrangement is between Roche and the university only, Golde and Koefler, who were also named in the suit, are also expected to share in the award in accordance with the university's intellectual property policy. Townsend said that provides for a 50:50 split between the university and a faculty inventor, less a 15 per cent administrative fee for the university.

Golde refused to comment on whether he would share in the settlement, which he said was a "round figure" and "what I consider to be a large sum — though I don't know if anyone else would".

The agreement ends a three-year legal battle that became increasingly acrimonious, with each side countersuing and adding new accusations regularly. Most recently, Roche charged Golde with slander and defamation for allegedly calling Roche "crooks" who had "hijacked" his cell line; the university countered that Roche had "wrongfully interfered" with Golde's and Koefler's professional relationships with the National Cancer Institute by spreading information "calculated to demean, misrepresent and disparage" them to the staff of the institute.

The seeds of the dispute were sown in 1978, when Golde supplied Dr Robert Gallo, a National Cancer Institute researcher, with the KG-1 cells. In a letter written to Gallo at the time, Golde said the cells "are made available exclusively to your laboratory for collaborative studies".

A year later, Gallo reported that the cells showed some promise for interferon production and, on 2 July 1979, Golde gave Gallo permission to investigate this.

At this point, the story becomes cloudy. Either directly or indirectly, Gallo then apparently made the cells available to Roche. Golde says his permission to transfer the cells to Roche was never sought, and that his understanding with Gallo that the

cells were not to be passed on remained in effect. Roche subsequently entered into an agreement with Genentech for the production of interferon from the cells.

The first legal action came in September 1980. Roche, in a pre-emptive strike, sued Golde, Koeffler and the University of California, seeking a declaratory judgement that the university had no claim on or interest in the cells or Roche's use of them. The university countersued, accusing Genentech of unlawfully using its property and Roche of unlawfully taking it.

The case was to go to trial in May. According to attorneys for both sides, there

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was no one event that led to the settlement last week; Golde speculates that Roche decided to settle because of "worries about bad publicity of a trial".

The settlement makes no determination of facts with regard to ownership of the cells, but Golde believes it will nevertheless have "a profound effect on interactions between educational institutions and the private sector". The university successfully maintained its claim to property rights, Golde says, while maintaining as well the rights of researchers to share that property freely and openly for scientific purposes.

Stephen Budiansky

Nuclear waste

Congress digs deeper

Washington

A SUSTAINED five-year effort to establish a national nuclear waste policy has finally born fruit. In the waning hours of the lame-duck session, Congress compromised on legislation that calls for the construction of two geological repositories, a "monitored retrievable storage" facility and at least one interim storage site for spent fuel as a stopgap. Construction of the first repository could begin as early as 1989 if all goes according to plan. (The bill was passed through a parliamentary manoeuvre that circumvented usual House procedures which had seemed certain to kill the bill by delaying action beyond the few hours left before adjournment.)

The most controversial provision in the compromise — and a significant victory for the nuclear power industry — is the federal government's acceptance of responsibility for spent fuel that exceeds the on-site storage capacity of reactors. The industry has maintained that unless the government provides this interim "away-from-reactor" (AFR) storage of spent fuel, some

of a repository will be subject to environmental impact review and to legal challenges. And, following the threat of a filibuster from Senator William Proxmire, whose home state of Wisconsin is considered to be a prime site for a granite repository, a very strong role for state governors was written into the site selection process: a vote of both houses of Congress will be required to override a governor's objection to the siting of a repository or AFR storage facility in his state.

The bill sets a tight schedule for the site selection and construction of the deep geological repositories, which are generally considered to offer the most permanent solution to nuclear waste disposal. The Department of Energy will have initially to pick five sites for possible study; by 1985, the list will be narrowed to three which will be characterized in detail. The President is required to make a final selection for the first repository site by 1987, with a decision from the Nuclear Regulatory Commission by 1989 on whether to issue a construction permit. A second repository site will be chosen three years later.

All operating and construction costs are to be covered by a fee on nuclear generated electricity, initially set at 0.1 per cent per kilowatt-hour. Military waste is not covered by this bill.

The bill also authorizes research and development on waste packaging, on repository design and on increasing on-site storage capacity for spent fuel at reactors. Included in the research and development programme is construction of a small test facility which will contain up to 100 canisters of high-level reprocessed waste or spent fuel and which will be used to study how well packaging and geological repositories can contain radionuclides. An unanswered question is whether the site selection process for the full-scale repositories may be on too fast a schedule, given the overlapping schedule for the research and development programme: the test facility is scheduled to begin operation by 1990, one year after construction of the first repository is to begin.

Stephen Budiansky

British universities

Tenure guarded

THE British government's decision to spend £100 million over the next three years on support for information technology and bringing new blood into universities received a cautious — not to say suspicious — welcome from the Association of University Teachers (AUT) at its recent council meeting. The caution stemmed from AUT's fear that many of the appointments to be made under the new scheme may be subject to waiver clauses denying security of tenure to those appointed, and thus undermine AUT's attempts to preserve that principle.

According to AUT, some 3,000 jobs in academic and related categories have been lost in Britain since the cutbacks in recurrent grants announced by the University Grants Committee in 1981: so far the redundancies have all been achieved through voluntary means, but recent proposals from the Committee of Vice-Chancellors and Principals indicate that attempts will be made to dismantle tenure in order to clear the way for further redundancies. The battle for security of tenure for full-time posts now seems likely to be fought at the University of Aston in Birmingham. But apart from this main battle, AUT is convinced that an estimated 10,000 contract researchers in universities and other institutions are being denied a reasonable degree of job security under existing arrangements and so are being deterred from pursuing a career in research. In particular, part-time researchers who are paid by the universities themselves seem to be getting a poor deal.

Under a new career structure agreement made 18 months ago, researchers funded by the Medical Research Council, on the other hand, seem to get rather a good deal. Contracts are either for a fixed period — non-renewable except under special circumstances — or for permanent tenured posts. AUT feels this arrangement avoids the situation in which quite senior researchers, accustomed to having their contracts renewed regularly, suddenly find themselves out of a job when funding dries up. But the Medical Research Council is unusual in this respect: most of the researchers funded by the Science and Engineering Research Council, for example, are on short-term appointments.

The Science and Engineering Research Council, in collaboration with the University Grants Committee, will be dispensing a large proportion of the money now available for information technology and for bringing new blood into the universities, apparently under existing rules. AUT now wonders if the existing rules are good enough, and is to pursue this point with Mr William Waldegrave, minister for higher education.

Tim Beardsley



of the older commercial reactors will have to shut down within a few years. Environmental groups have opposed AFR, fearing that it will become the *de facto* permanent storage facility.

Environmentalists did win on two other points. First, any final decisions on siting